DIABETES QUALITY CARE MONITORING SYSTEM

QUALITY IMPROVEMENT *REPORT*

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MT DEPARTMENT OF PUBLIC HEALTH AND HUMAN SERVICES

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Rate of Progression From Impaired Fasting Glucose to Type 2 Diabetes

Prior to 2003, the American Diabetes Association's (ADA) range for impaired fasting glucose (IFG) was 110 mg/dL to 125 mg/dL. The current ADA range for IFG is 100 mg/dL to125 mg/dL. Estimates of the rates of progression of type 2 diabetes in patients meeting the updated IFG criterion are not known. As such, Nichols and associates recently set out to estimate the rate of progression under the old and new IFG criteria and to evaluate predictors of progression to diabetes.[1]

This retrospective cohort study involved members of a non-profit, group-model HMO (Kaiser Permanente) in Portland, Oregon, who had no prior history of diabetes, at least 2 elevated fasting glucose tests (100 mg/dL to 125 mg/dL) measured between January 1, 1994, and December 31, 2003, and a normal fasting plasma glucose (FPG) test before the 2 elevated tests. Data were collected from electronic medical records, and subjects were followed until they developed diabetes, died, left the health plan, or until December 31, 2005. For this study, IFG was divided into 2 stages corresponding to the new and old ADA criteria: 100 mg/dL to 109 mg/dL (added IFG subjects) and 110 mg/dL to 125 mg/dL (original IFG subjects).

Among the 5,452 subjects, 4,526 (83.0%) had their first abnormal FPG test within the added IFG range (100–109 mg/dL), in an average of 17.8 months after their last normal test, and the remaining 926 (17.0%) subjects had their first abnormal FPG within the original IFG range (110–125 mg/dL), in an average of 22.5 months (P<0.0001 for the comparison between months).

Overall, 8.1% of added IFG subjects and 24.3% of original IFG subjects developed diabetes (P<0.0001) over a mean follow-up of 6.3 years. Added IFG subjects progressed to diabetes at a rate of 1.34% per year, within a mean of 41.4 months. In contrast, original IFG patients progressed to diabetes at a rate of 5.56% per year, within a mean of 29.0 months. When subjects reached original IFG, diabetes developed at approximately the same rate among those who did and did not pass through the added IFG stage (5.16% vs 5.87%; P=NS).

Each additional milligram per deciliter of initial fasting glucose increased the risk of progression from added IFG to original IFG by 8% and from added IFG to diabetes by 8%. Furthermore, diabetes development was predicted by a steeper rate of increasing fasting glucose concentration; higher body mass index, blood pressure value, and triglyceride concentration; and lower high-density lipoprotein cholesterol concentration.

These data revealed that the previous IFG criterion was more predictive of diabetes development than the new criterion. Three times the percentage of subjects with FPG within the original IFG range progressed to diabetes than subjects with FPG within the added IFG range. Moreover, original IFG subjects progressed to diabetes 4 times faster. A substantial number of newly identified patients with IFG progressed to diabetes in less than 3 years, which is the currently recommended screening interval by the ADA. Therefore, the authors suggest shortening the screening interval for diabetes, particularly among obese individuals and those with steeper glucose increases.

"This article is an abstract of the article: [1] Nicholas GA et al. Progression from newly acquired impaired fasting glucose to type 2 diabetes. Diabetes Care. 2007;30:228 – 233.

The abstract was first published in Volume 10, Issue Number 3 of *Clinical Insights® in Diabetes*, published by Professional Postgraduate Services as a part of its National Diabetes Educational Initiative (NDEI). Reprinted with permission. All rights reserved Professional Postgraduate Services."

FIGURE 1: PHYSICIAN OFFICES PARTICIPATING IN THE DIABETES QUALITY CARE MONITORING SYSTEM (DQCMS) PROJECT, July 2008 (N = 38)

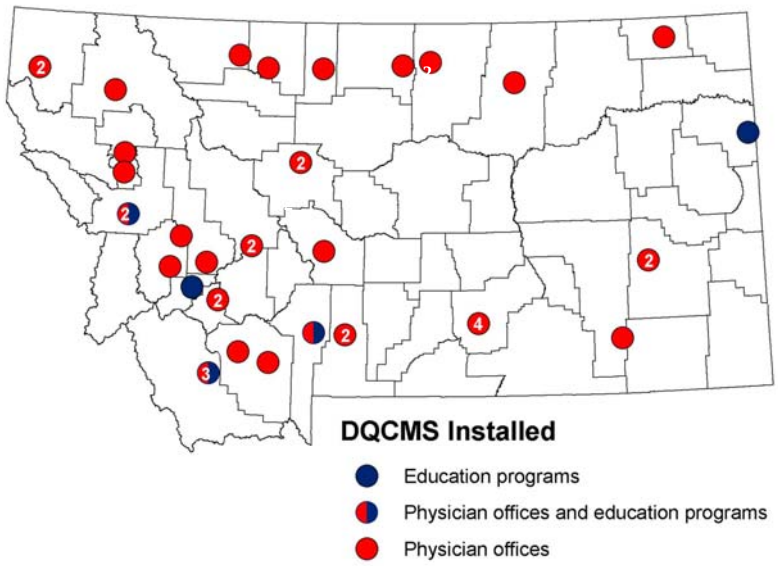


FIGURE 2: DIABETES CARE INDICATORS FROM MONTANA PHYSICIAN OFFICES PARTICIPATING IN THE DCMS/ DQCMS PROJECT, BASELINE (N = 22 CLINICS; 3,629 PATIENTS) AND JULY 2008 (N = 38 CLINICS; 8,446 PATIENTS)

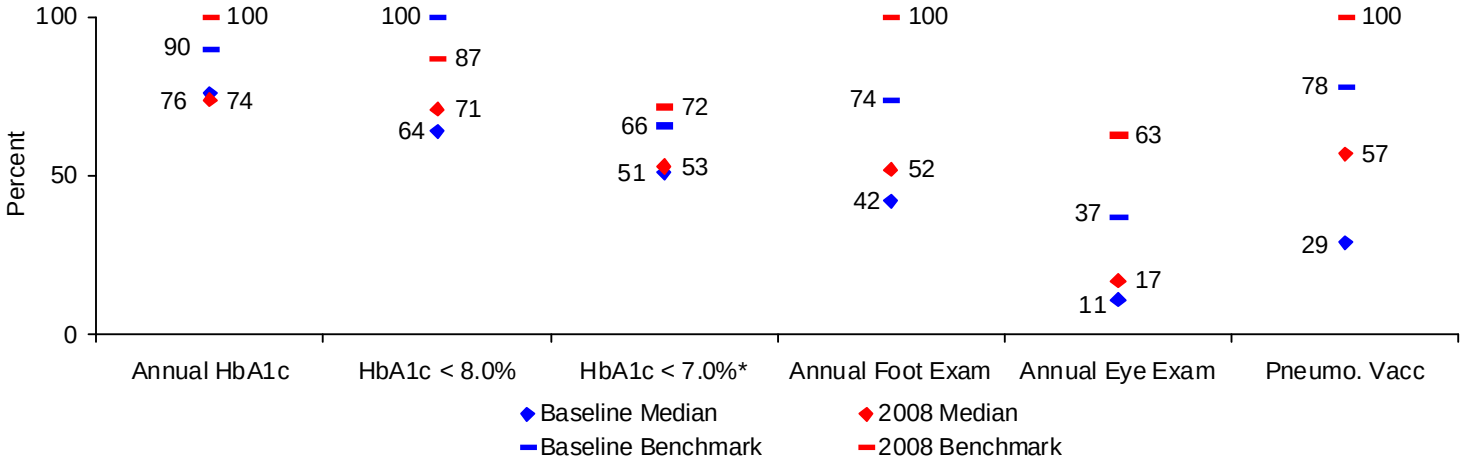
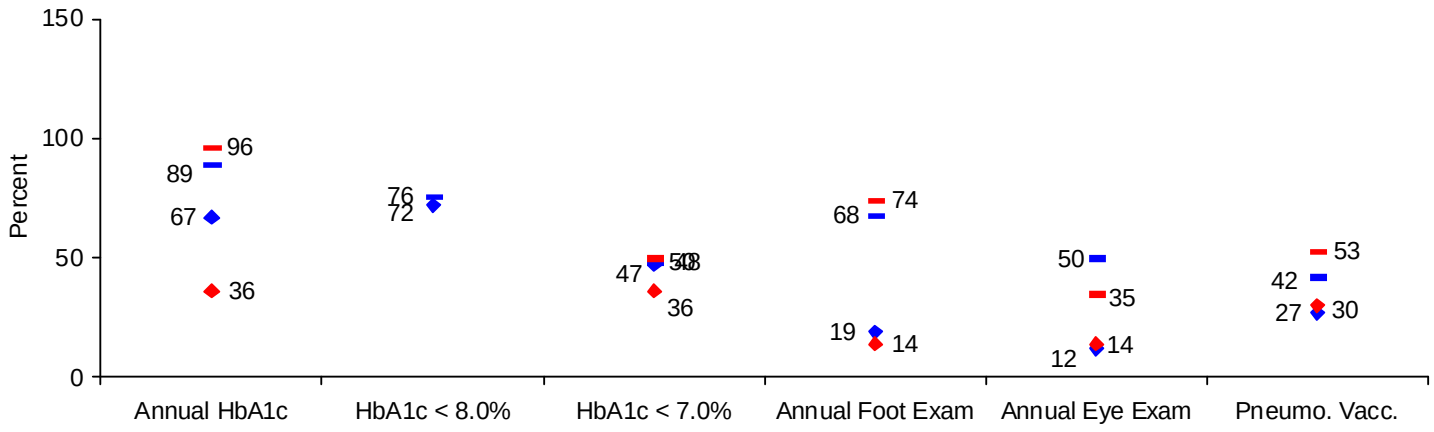


FIGURE 3: DIABETES CARE INDICATORS FROM MONTANA DIABETES EDUCATION PROGRAMS PARTICIPATING IN THE DQCMS PROJECT, BASELINE (N = 4 SITES; 912 PATIENTS) AND JULY 2008 (N = 5 SITES; 644 PATIENTS)



* 2007 HbA1c < 8.0% unable to calculate - only 1 site

"SUCCESSFUL QUALITY IMPROVEMENT ACTIVITIES"

The Montana Diabetes Project recognizes Granite County Medical Center and Margo Bowers Health Clinic for their dedication and innovation in providing quality care to their diabetes patients. The diabetes team working together has utilized a variety of projects resulting in terrific advances in achieving the standards of care. Thank you and we are happy you are a part of the MDP team.

FORMULATING QI INTERVENTIONS IN CLINICAL PRACTICE

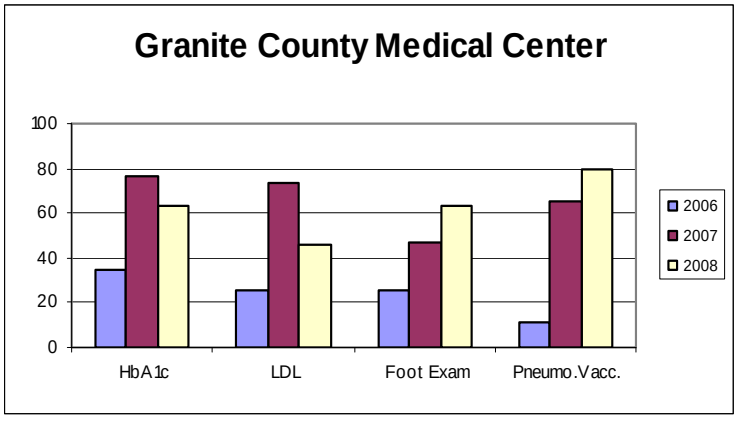
Granite County Health Care Facilities began utilizing the Diabetic Quality Care Monitoring System to track care of diabetic patients in the fourth quarter of 2006. Granite County Health Care Facilities consist of Granite County Medical Center located in Philipsburg and the Margo Bowers Health Clinic in Drummond. With the increased levels of care supported by formulation of quality improvement interventions, there are now 48 diabetic patients being monitored. Members of the diabetic team include John Moore, M.D., Debbie Kalarchik, FNP, Debbie Miller, FNP, Dee Dunkerson, LPN, Clinic Nurse, and Jeri Dirkes, Data Entry and Medical Records Ward Clerk.

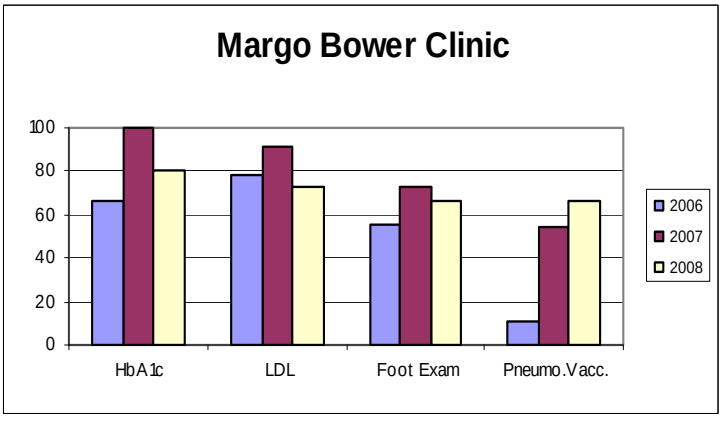
Review of Patient Profiles supported the belief that many of the diabetic patients being seen did not have a 3rd party payment source for health care. Patients were not eligible for Medicaid and/or Medicare and did not have health insurance. Compliance with preventative and routine follow-up services in 2006 was sporadic. Approximately 34% of the patients at GCMC and 67% at MBHC had received an A1C in 2006. Only 26% of the GCMC patients had LDL tests in the past year. Numbers were well below the benchmarks set by DQCMS. With the assistance of DQCMS reports the team was able to identify all patients who were due for these tests and plan interventions that would bring patients in for updated testing. Yearly in May, the facilities sponsor a Community Health Fair. Screening lab tests which include a CBC, CMP, and Lipids are offered at a price of $37. The team asked that an AIC also be offered at a discount price of $ 20. In 2007, 76% of the diabetic patients at GCMC had received an AIC and 74% a LDL. At MBHC 100% had received an A1C and 90% had received LDL tests. Plans are now being discussed to add a Microalbumin to the screening tests being offered at the 2008 Health Fair.

In response to the low number of diabetic patients with a pneumococcal vaccine identified in 2006, a list of patients needing this vaccine was generated before the annual Flu Vaccine Clinic held in October 2007. Patients were then sent a flu and pneumonia vaccine reminder letter generated by DQCMS. Response to the letters was significant, increasing the number of patients receiving pneumococcal vaccines from 11% to greater than 66%.

Annual monofilament foot exams have become the standard of care for greater than 60% of the diabetic patients seen. Clinic Nurses have made a laminated sleeve of the assessment protocols identified the DQCMS manual and placed them in each patient file. In this sleeve a monofilament is stored. Monofilaments and assessment criteria are then available to the provider at the time of the patients visit.

The providers use the DQCMS Patient Profile during the office visit to identify areas for which treatment needs to be intensified, such as an elevated A1C, LDL above 100, and uncontrolled blood pressure. Information is recorded on the profile and then the Clinic Nurse or Date Entry Clerk transfers the information to the computer program. ABC letters are generated and have been customized quarterly for those patients needing follow-up appointments. Appointment reminder cards have also been developed and are sent to the patient when preventative and follow-up care is needed.





Save the Date!

WHAT: **"Exploring New Frontiers in Diabetes, 2008"**
WHEN: **October 23-24, 2008**
WHERE: **Holiday Inn, Bozeman, MT**

(For more information contact Susan Day 406-444-6677)

Please help us welcome!

~ Elisabeth Mann, RN, CDE, CPT ~
Elisabeth joined our program staff as a Quality Improvement Coordinator and will be based in Ennis, MT. Please feel free to contact Elisabeth at:
(406) 682-5453 or elsmann@3rivers.net

Home Page
Montana Diabetes Project

www.diabetes.mt.gov

What's available on the website?

- Children with Diabetes: A Resource Guide for Schools
- Cardiovascular Disease & Diabetes Surveillance Reports
- Resource Library
- Information on Acanthosis Nigricans
- Information on **new** MT Cardiovascular Disease and Diabetes Prevention Program

A Red Carpet Welcome To:

- Madison Valley Hospital/Clinic – Ennis
- St. John's Lutheran Hospital/Clinic, Diabetes Education Center - Libby

~Montana Diabetes Project (MDP) Staff~

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